CLAIMS

1. An eccentricity detecting method of detecting an eccentricity between a first recording layer and a second recording layer of an information recording medium comprising the first recording layer and the second recording layer, each of which is for recording record information,

said eccentricity detecting method comprising:

a detecting process of detecting at least one of first position information and second position information, the first position information indicating a position of each of at least two reference points in one recording layer out of the first and second recording layers, the second position information indicating a position of respective one of at least two target points, which corresponds to each of the at least two reference points respectively, in other recording layer out of the first and second recording layers; and

a calculating process of calculating the eccentricity, on the basis of the at least one of the first and second position information detected.

2. The eccentricity detecting method according to claim 1, wherein said detecting process further comprises:

a laser irradiating process of irradiating each of the at least two reference points with laser light and of setting a focus position of the laser light on each of the reference points;

a layer jump process of performing layer jump by which the focus position of the laser light set on each of the at least two reference points is changed to the other recording layer; and

a position information detecting process of detecting the second

position information by setting the focus position of the laser light on the at least two target points.

3. The eccentricity detecting method according to claim 2, wherein

each of the first and second recording layers has a spiral or concentric recording track,

in said laser irradiating process, the focus position is set by performing tracking servo by which the focus position of the laser light is set along the recording track,

in said layer jump process, the focus position is changed, with an irradiating position of the laser light fixed, in such a condition that the tracking servo is open, and

in said position information detecting process, the second position information is detected in such a condition that the tracking servo is closed.

4. The eccentricity detecting method according to claim 2, wherein a time required for the performing of the layer jump and a time required for the setting of the focus position are equal, in each of the at least two target points.

5. The eccentricity detecting method according to claim 1, wherein

an address value capable of specifying a position on the first recording layer is recorded in advance in the first recording layer, and an address value capable of specifying a position on the second recording layer is recorded in advance in the second recording layer, and

in said detecting process, address information including the address value is detected as the first and second position information.

6. The eccentricity detecting method according to claim 5, wherein

the information recording medium is a disc-shaped information recording medium, and each of the first and second recording layers has a spiral or concentric recording track, and

the first and second position information includes information indicating a radial position of the information recording medium or a track number of the recording track.

7. The eccentricity detecting method according to claim 6, wherein in said detecting process, at least one of the first and second position information is detected, on the basis of at least one of a first association table and a first association equation each of which associates the address information with the information indicating the radial position or the track number.

8. The eccentricity detecting method according to claim 6, wherein said calculating process comprises:

a difference calculating process of obtaining a difference between the first position information and the second position information;

a relationship calculating process of approximately calculating an association relationship between a position on the information recording medium and the difference, on the basis of the difference calculated in said difference calculating process; and

an eccentricity calculating process of calculating the eccentricity, on the basis of the association relationship calculated in said relationship

calculating process.

9. The eccentricity detecting method according to claim 6, wherein in said detecting process, at least one of the first and second position information is detected, on the basis of at least one of a second association table and a second association equation each of which associates the address information with coordinate information indicating coordinates of the position on a recording surface of at least one of the first and second recording layers.

10. The eccentricity detecting method according to claim 9, wherein said calculating process comprises:

a first calculating process of calculating coordinates of a central point of the at least two target points, on the basis of the second position information;

a second calculating process of calculating coordinates of a central point of the other recording layer; and

an eccentricity calculating process of calculating the eccentricity, on the basis of the coordinates of the central point of the at least two target points and the coordinates of the central point of the other recording layer.

11. The eccentricity detecting method according to claim 1, wherein

the information recording medium is a disc-shaped information recording medium, and

the at least two reference points are at least three reference points distributed in an area with an angle of at least 180 degrees or more on the information recording medium.

12. An eccentricity detecting apparatus for detecting an eccentricity between a first recording layer and a second recording layer of an information recording medium comprising the first recording layer and the second recording layer, each of which is for recording record information,

said eccentricity detecting apparatus comprising:

a detecting device for detecting at least one of first position and second position information, the first position information indicating a position of each of at least two reference points in one recording layer out of the first and second recording layers, the second position information indicating a position of respective one of at least two target points, which corresponds to each of the at least two reference points respectively, in the other recording layer out of the first and second recording layers; and

a calculating device for calculating the eccentricity, on the basis of the at least one of the first and second position information detected.